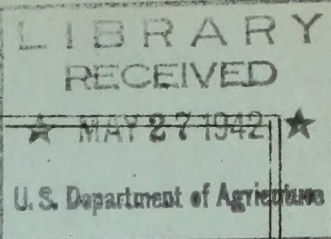


Historic, Archive Document

Do not assume content reflects current
scientific knowledge, policies, or practices.



SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for the
RIO GRANDE DRAINAGE BASIN

May 1, 1942

* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *

Issued by the
United States Department of Agriculture
Soil Conservation Service
Division of Irrigation
In Cooperation with
The Colorado Agricultural Experiment Station
Colorado State College
Fort Collins, Colorado

May 10, 1942

UNITED STATES DEPARTMENT OF AGRICULTURE

FOR THE

WATER RESOURCES DIVISION

WASHINGTON, D. C.



UNITED STATES DEPARTMENT OF AGRICULTURE
WATER RESOURCES DIVISION
WASHINGTON, D. C.
FOR THE
WATER RESOURCES DIVISION
WASHINGTON, D. C.

MAY 10, 1962

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

RIO GRANDE BASIN

May 1, 1942

The following data pertaining to snow surveys and irrigation water-supply forecasts are provided by the Division of Irrigation, Soil Conservation Service of the U.S. Department of Agriculture, in cooperation with other Federal Bureaus, State Departments, and local organizations. The snow measurements are made principally by field personnel of the U. S. Forest Service, U. S. Indian Service and Colorado State Engineer. This work is otherwise conducted cooperatively with the State Engineers of Colorado and New Mexico, Colorado Agricultural Experiment Station, and various municipalities, irrigation associations and others. Precipitation records are supplied by the U. S. Weather Bureau.

PRECIPITATION DATA (Based on incomplete returns)

WATERSHED	STATE	Precipitation October 1 to April 30	Departure from Normal	Precipitation April	Departure from Normal
		Inches	Inches	Inches	Inches
Canadian	New Mexico	10.70	+5.26	5.71	-4.55
Rio Grande	Colorado	11.02	+3.29	4.78	+3.22
Rio Grande	New Mexico	11.71	+3.86	3.97	+2.72
Pecos	New Mexico	8.75	+3.34	3.07	+2.09

Precipitation was considerably in excess of the normal during April over the watershed of the Pecos and the Canadian Rivers in New Mexico and the Rio Grande in Colorado and New Mexico. April precipitation on the Pecos and the Rio Grande in northern New Mexico was the greatest of record and the statewide average for April was exceeded only by 1915. The accumulated precipitation from October 1 to April 30 is from 3 to 5 inches in excess of the normal over the watersheds.

SUMMARY OF MAY 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

WATERSHEDS	Snow Depth			Water Content			Number Courses in Average	Snow Density			1942 Water Content in percent of	
	Six year Avg.*	1941	1942	Six year Avg.*	1941	1942		Six year Avg.*	1941	1942	Six year Avg.*	1941
	In.	In.	In.	In.	In.	In.		Percent	Percent	Percent	---	---
Rio Grande	29.9	53.5	34.9	13.3	23.0	13.5	11	44	43	39	102	59
Canadian River	---	18.6	---	---	7.1	---	2	---	38	---	---	---

*Some for shorter periods

WATER SUPPLY OUTLOOK

RIO GRANDE. The average water content of the snow on the watershed of the Rio Grande, May 1, was approximately 60 percent of that of last year at this time and equal to the past six-year average. During April the water content of the snow at high elevations increased, while for lower areas a loss occurred. Snow cover at the low elevations is now melting. High water is to be expected late this month but not to the point reached in 1941 and the high stage of flow will not be sustained. The reservoirs throughout the Rio Grande drainage are at a record filling, and the few reported at near capacity will have sufficient inflow during the period of greatest runoff to provide full storage. The storage in Elephant Butte Reservoir increased about 240,000 acre-feet during April to an amount approximating 95 percent of full capacity. The potential runoff now held in snow storage will without doubt cause this reservoir to spill. El Vado Reservoir is expected to fill to capacity during late May and early June. Soil moisture conditions in both the mountain and valley areas are good at this time, with the outlook of ample water to meet all irrigation needs this coming season.

CANADIAN AND PECOS RIVERS. The amount of snow on April 1 on the headwaters of these streams approximated the past six-year average. During April the precipitation over these areas was much above normal but came largely as rain. The runoff in these streams and tributaries will probably be somewhat less than normal but, because of the excellent reservoir storage at this time, no shortage in irrigation supplies is anticipated. A considerable amount of water has been wasted over reservoir spillways during April on the Carlsbad Project.

GROUNDWATER. Since last year artesian pressure increased about 15 feet in the Roswell artesian basin, and in the shallow water areas on the Pecos there was an average rise of about 5.7 feet in the groundwater level. The rise in the House area on the Canadian averaged about 5.2 feet. In the Portales Valley the rise was about 8.4 feet, but in the Mimbres Valley there was a drop of about 0.3 foot. In the High Plain of Leo County, the average rise over the whole area was 2.4 feet.

The first of these is the fact that the population of the world is increasing at a rapid rate. This is due to a number of factors, including improved medical care, increased food production, and a decline in the death rate. The second factor is the fact that the world's resources are being depleted at a rapid rate. This is due to a number of factors, including increased consumption, increased industrialization, and a decline in the birth rate. The third factor is the fact that the world's climate is changing at a rapid rate. This is due to a number of factors, including increased greenhouse gas emissions, increased deforestation, and a decline in the birth rate.

The fourth factor is the fact that the world's political situation is becoming increasingly unstable. This is due to a number of factors, including increased competition for resources, increased industrialization, and a decline in the birth rate. The fifth factor is the fact that the world's economic situation is becoming increasingly unstable. This is due to a number of factors, including increased competition for resources, increased industrialization, and a decline in the birth rate.

The sixth factor is the fact that the world's cultural situation is becoming increasingly unstable. This is due to a number of factors, including increased competition for resources, increased industrialization, and a decline in the birth rate. The seventh factor is the fact that the world's technological situation is becoming increasingly unstable. This is due to a number of factors, including increased competition for resources, increased industrialization, and a decline in the birth rate.

The eighth factor is the fact that the world's environmental situation is becoming increasingly unstable. This is due to a number of factors, including increased competition for resources, increased industrialization, and a decline in the birth rate. The ninth factor is the fact that the world's social situation is becoming increasingly unstable. This is due to a number of factors, including increased competition for resources, increased industrialization, and a decline in the birth rate.

The tenth factor is the fact that the world's overall situation is becoming increasingly unstable. This is due to a number of factors, including increased competition for resources, increased industrialization, and a decline in the birth rate.

The following table shows the population of the world from 1950 to 2000. The population is shown in millions.

Year	Population (millions)
1950	2,500
1955	2,600
1960	2,700
1965	2,800
1970	2,900
1975	3,000
1980	3,100
1985	3,200
1990	3,300
1995	3,400
2000	3,500

The following table shows the world's resources from 1950 to 2000. The resources are shown in millions of tons.

Year	Resources (millions of tons)
1950	100
1955	110
1960	120
1965	130
1970	140
1975	150
1980	160
1985	170
1990	180
1995	190
2000	200

The following table shows the world's climate from 1950 to 2000. The climate is shown in degrees Celsius.

Year	Climate (degrees Celsius)
1950	15
1955	16
1960	17
1965	18
1970	19
1975	20
1980	21
1985	22
1990	23
1995	24
2000	25

The following table shows the world's political situation from 1950 to 2000. The political situation is shown in a rating from 1 to 10.

Year	Political Situation (rating)
1950	1
1955	2
1960	3
1965	4
1970	5
1975	6
1980	7
1985	8
1990	9
1995	10
2000	11

The following table shows the world's economic situation from 1950 to 2000. The economic situation is shown in a rating from 1 to 10.

Year	Economic Situation (rating)
1950	1
1955	2
1960	3
1965	4
1970	5
1975	6
1980	7
1985	8
1990	9
1995	10
2000	11

The following table shows the world's cultural situation from 1950 to 2000. The cultural situation is shown in a rating from 1 to 10.

Year	Cultural Situation (rating)
1950	1
1955	2
1960	3
1965	4
1970	5
1975	6
1980	7
1985	8
1990	9
1995	10
2000	11

The following table shows the world's technological situation from 1950 to 2000. The technological situation is shown in a rating from 1 to 10.

Year	Technological Situation (rating)
1950	1
1955	2
1960	3
1965	4
1970	5
1975	6
1980	7
1985	8
1990	9
1995	10
2000	11

The following table shows the world's environmental situation from 1950 to 2000. The environmental situation is shown in a rating from 1 to 10.

Year	Environmental Situation (rating)
1950	1
1955	2
1960	3
1965	4
1970	5
1975	6
1980	7
1985	8
1990	9
1995	10
2000	11

The following table shows the world's social situation from 1950 to 2000. The social situation is shown in a rating from 1 to 10.

Year	Social Situation (rating)
1950	1
1955	2
1960	3
1965	4
1970	5
1975	6
1980	7
1985	8
1990	9
1995	10
2000	11

The following table shows the world's overall situation from 1950 to 2000. The overall situation is shown in a rating from 1 to 10.

Year	Overall Situation (rating)
1950	1
1955	2
1960	3
1965	4
1970	5
1975	6
1980	7
1985	8
1990	9
1995	10
2000	11

Item	Quantity	Unit	Price	Total	Remarks
1000	1000	lb	0.05	50.00	1000 lb of ...
2000	2000	lb	0.05	100.00	2000 lb of ...
3000	3000	lb	0.05	150.00	3000 lb of ...
4000	4000	lb	0.05	200.00	4000 lb of ...
5000	5000	lb	0.05	250.00	5000 lb of ...
6000	6000	lb	0.05	300.00	6000 lb of ...
7000	7000	lb	0.05	350.00	7000 lb of ...
8000	8000	lb	0.05	400.00	8000 lb of ...
9000	9000	lb	0.05	450.00	9000 lb of ...
10000	10000	lb	0.05	500.00	10000 lb of ...
11000	11000	lb	0.05	550.00	11000 lb of ...
12000	12000	lb	0.05	600.00	12000 lb of ...
13000	13000	lb	0.05	650.00	13000 lb of ...
14000	14000	lb	0.05	700.00	14000 lb of ...
15000	15000	lb	0.05	750.00	15000 lb of ...
16000	16000	lb	0.05	800.00	16000 lb of ...
17000	17000	lb	0.05	850.00	17000 lb of ...
18000	18000	lb	0.05	900.00	18000 lb of ...
19000	19000	lb	0.05	950.00	19000 lb of ...
20000	20000	lb	0.05	1000.00	20000 lb of ...
21000	21000	lb	0.05	1050.00	21000 lb of ...
22000	22000	lb	0.05	1100.00	22000 lb of ...
23000	23000	lb	0.05	1150.00	23000 lb of ...
24000	24000	lb	0.05	1200.00	24000 lb of ...
25000	25000	lb	0.05	1250.00	25000 lb of ...
26000	26000	lb	0.05	1300.00	26000 lb of ...
27000	27000	lb	0.05	1350.00	27000 lb of ...
28000	28000	lb	0.05	1400.00	28000 lb of ...
29000	29000	lb	0.05	1450.00	29000 lb of ...
30000	30000	lb	0.05	1500.00	30000 lb of ...
31000	31000	lb	0.05	1550.00	31000 lb of ...
32000	32000	lb	0.05	1600.00	32000 lb of ...
33000	33000	lb	0.05	1650.00	33000 lb of ...
34000	34000	lb	0.05	1700.00	34000 lb of ...
35000	35000	lb	0.05	1750.00	35000 lb of ...
36000	36000	lb	0.05	1800.00	36000 lb of ...
37000	37000	lb	0.05	1850.00	37000 lb of ...
38000	38000	lb	0.05	1900.00	38000 lb of ...
39000	39000	lb	0.05	1950.00	39000 lb of ...
40000	40000	lb	0.05	2000.00	40000 lb of ...
41000	41000	lb	0.05	2050.00	41000 lb of ...
42000	42000	lb	0.05	2100.00	42000 lb of ...
43000	43000	lb	0.05	2150.00	43000 lb of ...
44000	44000	lb	0.05	2200.00	44000 lb of ...
45000	45000	lb	0.05	2250.00	45000 lb of ...
46000	46000	lb	0.05	2300.00	46000 lb of ...
47000	47000	lb	0.05	2350.00	47000 lb of ...
48000	48000	lb	0.05	2400.00	48000 lb of ...
49000	49000	lb	0.05	2450.00	49000 lb of ...
50000	50000	lb	0.05	2500.00	50000 lb of ...
51000	51000	lb	0.05	2550.00	51000 lb of ...
52000	52000	lb	0.05	2600.00	52000 lb of ...
53000	53000	lb	0.05	2650.00	53000 lb of ...
54000	54000	lb	0.05	2700.00	54000 lb of ...
55000	55000	lb	0.05	2750.00	55000 lb of ...
56000	56000	lb	0.05	2800.00	56000 lb of ...
57000	57000	lb	0.05	2850.00	57000 lb of ...
58000	58000	lb	0.05	2900.00	58000 lb of ...
59000	59000	lb	0.05	2950.00	59000 lb of ...
60000	60000	lb	0.05	3000.00	60000 lb of ...
61000	61000	lb	0.05	3050.00	61000 lb of ...
62000	62000	lb	0.05	3100.00	62000 lb of ...
63000	63000	lb	0.05	3150.00	63000 lb of ...
64000	64000	lb	0.05	3200.00	64000 lb of ...
65000	65000	lb	0.05	3250.00	65000 lb of ...
66000	66000	lb	0.05	3300.00	66000 lb of ...
67000	67000	lb	0.05	3350.00	67000 lb of ...
68000	68000	lb	0.05	3400.00	68000 lb of ...
69000	69000	lb	0.05	3450.00	69000 lb of ...
70000	70000	lb	0.05	3500.00	70000 lb of ...
71000	71000	lb	0.05	3550.00	71000 lb of ...
72000	72000	lb	0.05	3600.00	72000 lb of ...
73000	73000	lb	0.05	3650.00	73000 lb of ...
74000	74000	lb	0.05	3700.00	74000 lb of ...
75000	75000	lb	0.05	3750.00	75000 lb of ...
76000	76000	lb	0.05	3800.00	76000 lb of ...
77000	77000	lb	0.05	3850.00	77000 lb of ...
78000	78000	lb	0.05	3900.00	78000 lb of ...
79000	79000	lb	0.05	3950.00	79000 lb of ...
80000	80000	lb	0.05	4000.00	80000 lb of ...
81000	81000	lb	0.05	4050.00	81000 lb of ...
82000	82000	lb	0.05	4100.00	82000 lb of ...
83000	83000	lb	0.05	4150.00	83000 lb of ...
84000	84000	lb	0.05	4200.00	84000 lb of ...
85000	85000	lb	0.05	4250.00	85000 lb of ...
86000	86000	lb	0.05	4300.00	86000 lb of ...
87000	87000	lb	0.05	4350.00	87000 lb of ...
88000	88000	lb	0.05	4400.00	88000 lb of ...
89000	89000	lb	0.05	4450.00	89000 lb of ...
90000	90000	lb	0.05	4500.00	90000 lb of ...
91000	91000	lb	0.05	4550.00	91000 lb of ...
92000	92000	lb	0.05	4600.00	92000 lb of ...
93000	93000	lb	0.05	4650.00	93000 lb of ...
94000	94000	lb	0.05	4700.00	94000 lb of ...
95000	95000	lb	0.05	4750.00	95000 lb of ...
96000	96000	lb	0.05	4800.00	96000 lb of ...
97000	97000	lb	0.05	4850.00	97000 lb of ...
98000	98000	lb	0.05	4900.00	98000 lb of ...
99000	99000	lb	0.05	4950.00	99000 lb of ...
100000	100000	lb	0.05	5000.00	100000 lb of ...

Received of ...
 the sum of ...
 for ...
 ...
 ...
 ...

This receipt is valid only if countersigned by the ...
 ...
 ...

RESERVOIR STORAGE

Reservoir Storage in Thousands of Acre-Feet, Rio Grande Drainage, as of May 1, for the Years 1933-1942, inclusive. (Based on data from the State Engineer of Colorado, U. S. Bureau of Reclamation and other agencies).

A = Percentage of capacity. B = Percentage of 10-year average. C = Percentage of filling forecast for 1942.

Reservoir	Capacity Ac-ft.	1933 Ac-ft.	1934 Ac-ft.	1935 Ac-ft.	1936 Ac-ft.	1937 Ac-ft.	1938 Ac-ft.	1939 Ac-ft.	1940 Ac-ft.	1941 Ac-ft.	1942 Ac-ft.	10-yr. Avg. Ac-ft.	A %	B %	C %
Rio Grande	45.8	15.3	4.9	0.3	23.6	16.2	17.5	36.7	4.7	8.4	49.1	17.7	107	277	100
Santa Maria	45.0	7.0	6.8	4.6	6.9	9.5	10.8	15.1	3.8	4.6	26.9	9.6	60	280	80
Sanchez	25.9	10.2	12.0	7.4	13.8	17.6	19.2	22.9	10.9	8.6	37.9	16.0	146	237	100
Terrace	17.7	0.6	1.4	1.3	6.4	4.5	9.6	7.5	1.7	3.8	9.1	4.6	51.	198	75
Continental	26.7	6.5	2.6	0.8	3.3	0.5	4.0	4.3	1.0	0.0	10.0	3.3	38	304	75
Elephant															
Butte	2273.7	1275.3*	1001.6*	488.0*	782.5	917.1	1099.0	1324.0	803.2	598.5	2126.0	1041.5	93	204	100
El Vado	226.0	--	--	--	--	--	148.6	87.4	113.7	129.8	155.5	127.0	69	122	100
Caballo	365.0	--	--	--	--	0.0	14.5	44.5	17.3	67.8	263.1	81.4	72.	323	100
Conchas	600.0	--	--	--	--	--	--	--	80.6	155.5	390.6	208.9	65	187	75

Some averages for shorter periods.

*Based on capacity of 2,407,100 acre-feet.

